

# Notice of Allowability

Application No.

09/676,552

Examiner

Lewis A. Bullock, Jr.

Applicant(s)

GINSBURG, MICHAEL

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2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 9/5/07.
2. ☒ The allowed claim(s) is/are 19, 20, 22, 23 and 25-38 now renumbered 1-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
LEWIS A. BULLOCK, JR.  
PRIMARY EXAMINER

### **REASONS FOR ALLOWANCE**

1. The following is an examiner's statement of reasons for allowance: The claims are allowable for at least the following reason: The cited claims detail a computer medium of a functional priority queue data structure or methods for inserting or removing entities from the data structure. All of the claims detail that the data structure is made up of an array and a plurality of linked lists that interact with one another. The array entries are separated into respective ranges, i.e. the priority ranges for threads, wherein the array entries point to the greatest rank entity for a respective range of ranks associated with that entry. The recited array identified entities are then linked with each other and with other non-array identified entities into a horizontal linked list. The entities of the horizontally linked list are arranged in a rank order and have a respective unique rank relative to the ranks of the other entities in the horizontally linked list. The entities of the horizontally linked list are linked with other entities having the same rank in a vertical linked list. Therefore, the priority queue data structure details an array having a plurality of entries with respective priority ranges such that the array entry points to the highest rank entity in their respective range. These highest rank entities are linked together with other entities into a horizontally linked list wherein each entity of the horizontally linked list have a respective unique rank. The entities of the horizontally linked list are linked with other entities that have a similar rank in a vertical linked list such that the adding and removing of entities is done by first identify the rank range of the entity to be added / removed (via the array), traverse the horizontal link list to find the respective rank, and then traverse the vertical linked list. Claims 19 details the data

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structure as outlined above, with steps for adding a entity into the structure while claim 31 details the data structure with steps for removing an entity from all aspects (i.e. the array and the linked lists) of the data structure. The cited prior art of record at best details an array having a respective linked list and vertical list. However, the cited prior art does not detail the relationship of the linked list's elements to one another and to the array. The cited prior art does not detail that the array entries point to the highest rank entity for that array entry's respective range such that these entities are linked with one another and with other entities to form a horizontally linked list. The cited prior art does not detail that the entities of the horizontally linked list have a respective unique rank relative to one another such that similar rank entities are linked together in a vertical linked list. Therefore, the cited claims are allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lewis A. Bullock, Jr. whose telephone number is (571) 272-3759. The examiner can normally be reached on Monday-Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 17, 2007



LEWIS A. BULLOCK, JR.  
PRIMARY EXAMINER